A record of the Bristle-faced free-tailed bat *Mormopterus eleryi* from Kwiambal National Park

David Scotts

40 Oceanview Crescent, Emerald Beach, NSW 2456; Email: davescotts@bigpond.com

ABSTRACT

A recent trapping record of the Bristle-faced Free-tailed Bat *Mormopterus eleryi* at Kwiambal National Park, near Ashford, adds to a small, but relatively localised, cluster of records of this species on the northern North West Slopes of New South Wales. This may indicate the relative importance of this region for *M. eleryi*, the only bat species listed as Endangered in New South Wales under the *Threatened Species Conservation Act* (1995). The bat was captured adjacent to river flats associated with the McIntyre River, supporting previous reports that this species may favour riverine and drainage line habitats. As focal areas for human habitation and recreation, inland riverine habitats require targeted and strategic conservation management. Population monitoring, targeted trapping surveys, and research into ecology and habitat requirements are essential steps to the conservation of the Bristle-faced Free-tailed Bat but enough baseline information exists to allow formulation of targeted conservation management and planning programs for this high priority species.

Key words: Bristle-faced Free-tailed Bat, Hairy-nosed Freetail Bat, *Mormopterus eleryi,* Kwiambal National Park, NSW Priorities Action Statements, PAS, species recovery

Introduction

The Bristle-faced Free-tailed Bat *Mormopterus eleryi* was described by Reardon *et al.* (2008); it was informally known as *Mormopterus* species 6 prior to its description (e.g. Churchill 2008 after Adams *et al.* 1988). It is the only bat species listed as Endangered in New South Wales under the *Threatened Species Conservation Act* (1995) (TSC Act 1995). The common name of Hairy-nosed Free-tailed Bat has been used for this species, e.g. on the NSW Office of Environment and Heritage (OEH) Threatened Species website (OEH 2011a,b) but the name used by Reardon *et al.* is adopted here.

Although known from a small number of locations in arid and semi-arid regions of central and eastern Queensland, southern Northern Territory and northern South Australia (Figure 1), it had not been recorded in New South Wales prior to 1998 when Ellis (2001)

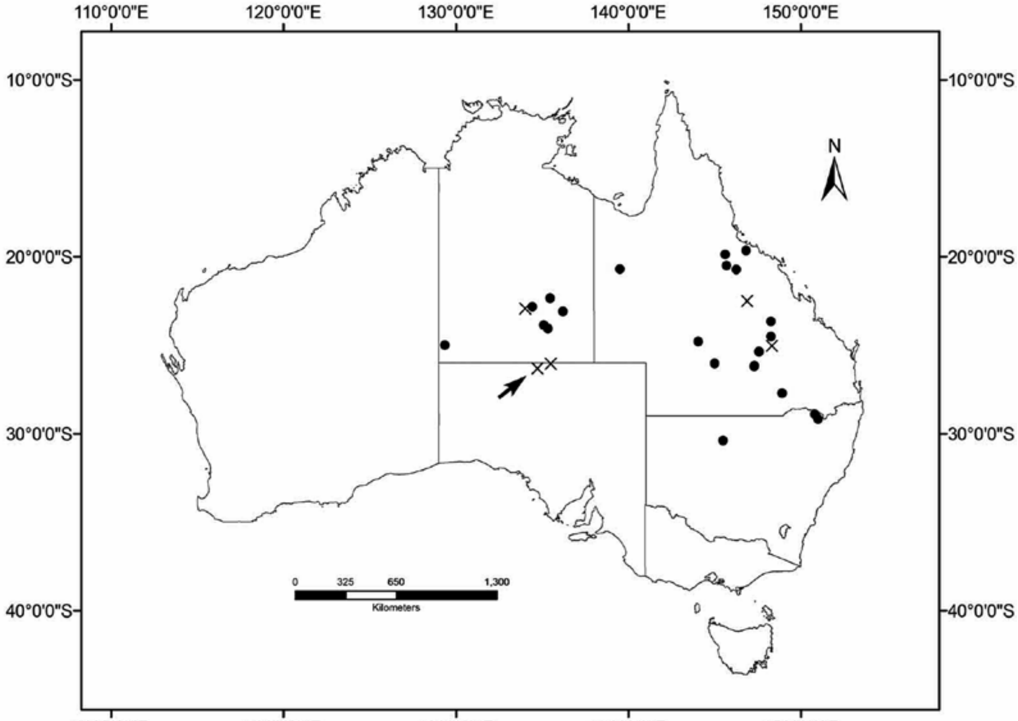

Figure 1. Locality records of the Bristle-faced Free-tailed Bat as of 2008. (Taken from Reardon et al. 2008). Localities of samples used in allozyme electrophoresis analysis by Reardon *et al.* are marked with an X. The type locality is arrowed.

captured three individuals at Gundabooka National Park, about 50 kilometres south of Bourke. Another individual was captured at (then) Bebo State Forest (now Dthinna Dthinnawan National Park), north of Yetman in 2001 (Pennay 2002), and two more were captured at and near Maroomba State Conservation area (near Bonshaw) in 2002 (Andren 2004) (Figure 2).

In 2004 the species was listed as Endangered in NSW on the basis of its rarity and risk of extinction (DEC 2004). Nationally it has been given 'Data Deficient' status (Duncan *et al.* 1999) and internationally it has not been assigned a threat category in the most recent IUCN redlist (2011.1).Recent genetic investigations suggest that this species may be currently misplaced

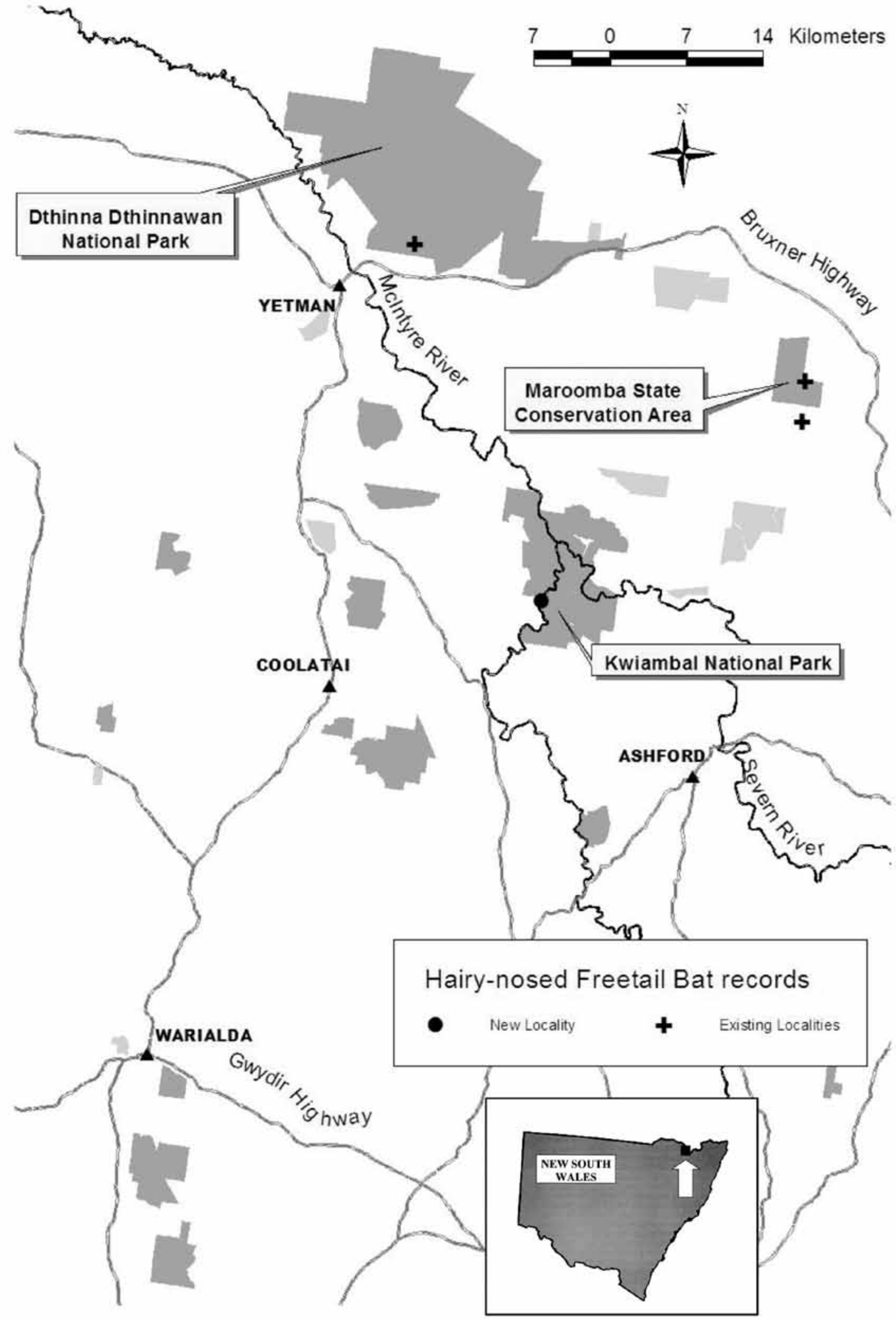
7 0 7 14 Kilometers
N
Dthinna Dthinnawan National Park
Bruxner Highway
YETMAN
McIntyre River
Maroomba State Conservation Area
Kwiambal National Park
COOLATAI
ASHFORD
Severn River
Hairy-nosed Freetail Bat records
● New Locality
✚ Existing Localities
WARIALDA
Gwydir Highway
NEW SOUTH WALES

Figure 2. Records of the Bristle-faced Free-tailed Bat from the northern North West Slopes of New South Wales.

taxonomically and could belong in a monotypic genus separate from other Australian *Mormopterus,* further elevating its conservation significance on the basis of phylogenetic uniqueness (Reardon *et al.* 2008). What is known of its ecology was gleaned by Pennay (2006) who returned to Gundabooka National Park in 2005, captured 10 individual Bristle-faced Free-tailed bats and radio-tracked several to provide information concerning the species' roosting and foraging ecology. Pennay (2006) highlighted the species' use of tree hollows for roosting and reported a "significant bias" for foraging and roost locations along riparian habitat at Gundabooka NP. Previously, Ellis (2001) had also commented on the species' apparent utilisation of riverine habitats.

The Bristle-faced Free-tailed Bat from Kwiambal National Park

On 25th March 2010 an adult male Bristle-faced Free-tailed Bat (Figure 3) was captured by the author in a harp trap located on a forested terrace adjacent to the McIntyre River (29°10'31.11"S, 150°57'13.64"E) in Kwiambal National Park (Figure 4). This animal was taken as a voucher specimen, and registered (M42906) at the Australian Museum for verification of identification. This animal was captured during a vertebrate survey of the area (Scotts and Dudley 2010).

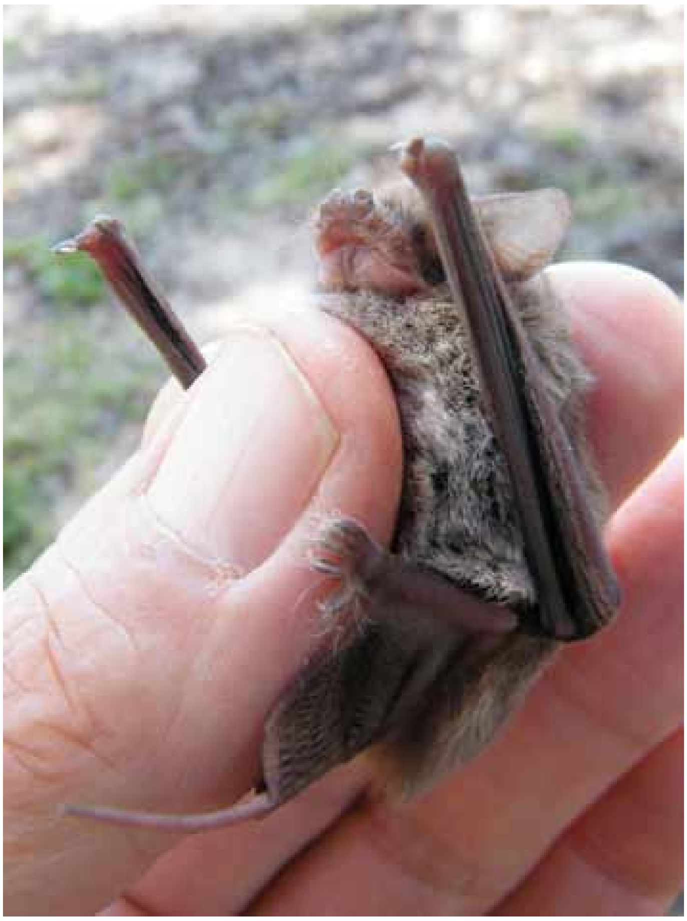

Figure 3. Bristle-faced Free-tailed Bat *Mormopterus eleryi* trapped at Kwiambal National Park, March 2010.

The vegetation of the trap site (Figure 5) comprised a mixed over storey of Blakely's Red Gum *E. blakelyi*, Silver-leaved Ironbark *E. melanophloia* and Rough-barked Apple *Angophora floribunda*. The mid-storey was generally sparse but with patchy thickets of teatree *Leptospermum brevipes* and White Pine *Callitris glaucophylla*. A grassy understorey dominated the more open areas. The site was immediately adjacent to an open, grassy riverine habitat fringing the McIntyre River (Figure 6) dominated by River Red Gum *E. camaldulensis*, Blakely's Red Gum and Rough-barked Apple.

The vertebrate fauna survey at Kwiambal National Park was undertaken in early autumn with prevailing weather conditions that were considered conducive to the capture of microchiropteran bats in harp traps. The temperature during the six day survey ranged from a minimum of 16 °C to a maximum of 33°C and there was no rainfall. Seven harp trap sites were surveyed for two nights each (14 trap nights). Four of these were adjacent to either the McIntyre or Severn River and three were located in the surrounding forest and woodland (Figure 4). In all 13 individuals of five bat species were caught in harp traps and a further 6 species were identified by the analysis of calls collected with the use of an Anabat bat detector (Appendix 1).

Discussion

This paper highlights the potential importance of the northern North West Slopes of New South Wales for the Bristle-faced Free-tailed Bat. The addition of Kwiambal NP as a known location for this species adds to a small, but relatively localized, cluster of records on the northern North West Slopes of New South Wales (Figure 2). Three other known locations, Dthinna Dthinnawan National Park (formerly Bebo State Forest), north of Yetman, and two locations near Maroomba State Conservation Area (near Bonshaw) are within 25 kilometres of Kwiambal National Park. Consequently, four of the five locality records of this species reported from NSW are concentrated on the northern North West Slopes, indicating that this general area could be important to this rarely recorded species. Further, the Hairy-nosed Free-tailed Bat appears to be susceptible to capture by traditional bat trapping methods, indicating that its sporadic known locations reflect actual rarity across its known range (Pennay 2006), rather than being an artefact of survey methods.

The Bristle-faced Free-tailed Bat is known to be dependent upon hollows and tree fissures for roosting sites including maternity sites (Pennay 2006). Radio-tracking studies at Gundabooka National Park highlighted that preferred roost trees and foraging habitats were associated with drainage channels and riverine habitats and not the surrounding mulga shrublands (Pennay 2006). The capture site at Kwiambal National Park was adjacent to riverine habitat along the McIntyre River supporting previous observations of a preference for riverine habitats by this species. However, habitat use by this species on the northwest slopes needs further study to determine the extent of habitat use away from riparian areas. In comparison with the Gundabooka study area, the contrast

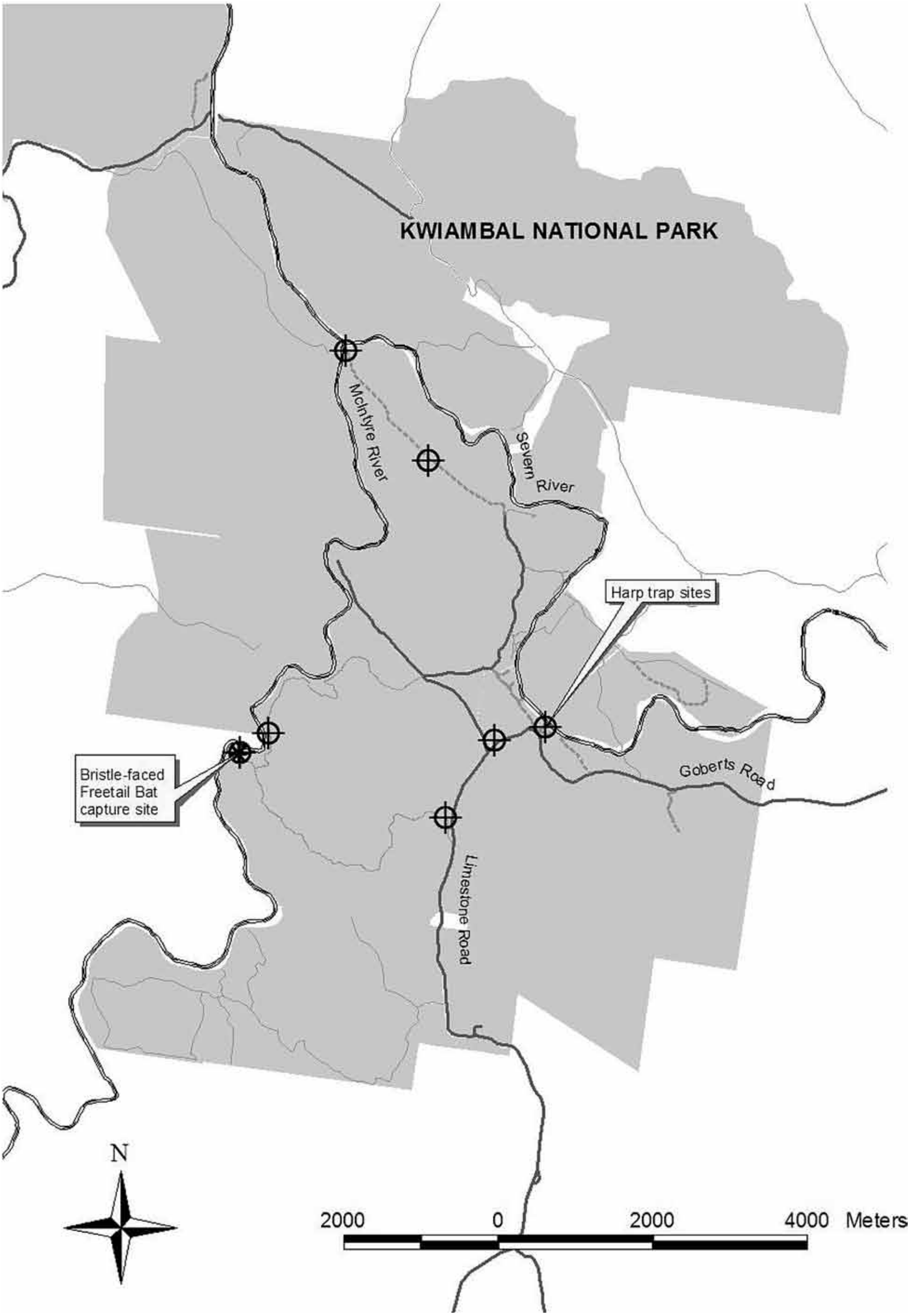
KWIAMBAL NATIONAL PARK
McIntyre River
Severn River
Harp trap sites
Goberts Road
Bristle-faced Freetail Bat capture site
Limestone Road
N
2000
0
2000
4000 Meters

Figure 4. Location of harp trap sites and Bristle-faced Free-tailed Bat capture site at Kwiambal National Park, March 2010.

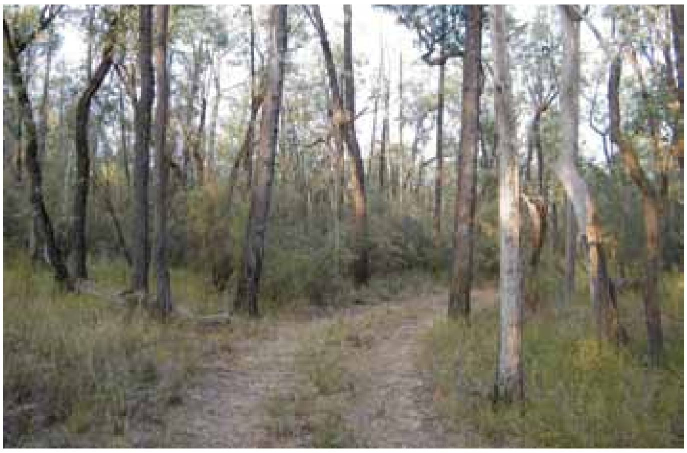

Figure 5. Habitat at Bristle-faced Free-tailed Bat trap site, Kwiambal National Park.

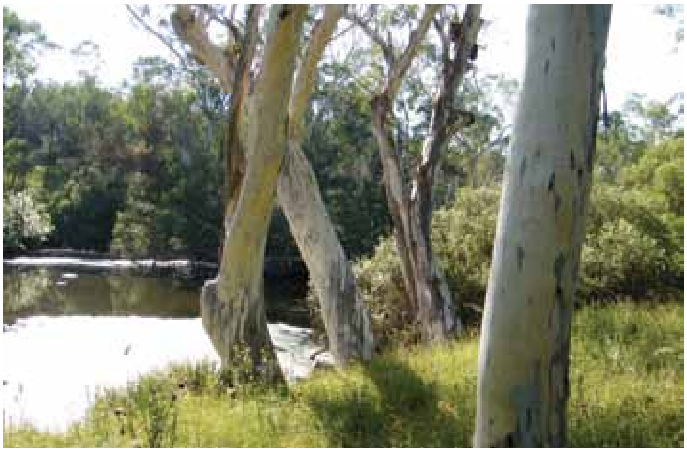

Figure 6. Riverine habitat immediately adjacent the Bristle-faced Free-tailed bat capture site, Kwiambal National Park.

between riparian habitat and surrounding vegetation types at Kwiambal National Park is less pronounced in terms of habitat structure and availability of hollow bearing trees.

Kwiambal National Park supports extensive riverine habitats associated with the McIntyre and Severn Rivers and may offer prime habitat for this species. These habitats are focus areas for human recreation in the park and fauna survey results (Scotts and Dudley 2010) reveal that they are also important habitats for other species including a suite of bats, Koala, Squirrel Glider, Platypus, freshwater turtles, woodland birds and reptiles and a variety of frogs.

Improving the conservation of the Bristle-faced Free-tailed Bat

As the only bat species listed as Endangered in New South Wales under the TSC Act (1995) it is surprising that only seven Priority Actions, "the specific, practical things that must be done to recover a threatened species", have been identified for the Bristle-faced Free-tailed Bat (OEH 2011b). This contrasts with most other threatened bat species, all of which are listed under the TSC Act (1995) at the lower threat level of Vulnerable. Two species, Golden-tipped Bat *Kerivoula papuensis* and Inland Forest Bat *Vespadelus baverstocki*, have six Priority Actions. The other 13 Vulnerable species have a minimum of 13 actions and up to 25 actions for the Little Bent-wing Bat *Miniopterus australis* and Eastern Bent-wing Bat *M. schreibersii oceanensis.* This appears to be an imbalanced approach to the identification of conservation priorities leaving this demonstrably rare species somewhat short-changed in terms of directed and targeted conservation action. Lunney *et al.* (2011) list 22 "standard recovery strategies" for bats as a group that are found in the current OEH Priorities Action Statements (PAS) but many seemingly relevant strategies are not currently provided for the Bristle-faced Free-tailed Bat. Aspects not addressed include habitat and site protection, feral animal and weed control, advice to consent and planning authorities, restoration and revegetation, and community and landholder education. Pennay (2006) provides a basis for recovery actions reflecting the findings of his baseline survey and research at Gundabooka NP. His recommendations and conclusions are relevant, as the best available information for this high priority species, to park managers and other land managers whose areas coincide with the expected range of the Bristle-faced Free-tailed bat. It is to be hoped that this Endangered species will be provided with more detailed recovery strategies when the Priority Actions are next reviewed.

Of the Priority Actions that are currently provided for the Bristle-faced Free-tailed Bat (OEH 2011b), long term population monitoring and targeted research into the ecology and habitat requirements of the species are emphasised as the highest priority. This paper indicates that the northern North West Slopes of New South Wales is of potential importance for the Bristle-faced Free-tailed Bat and the species' conservation status in New South Wales. Further bat trapping surveys and monitoring of populations could focus on known localities at and around Gundabooka, Dthinna Dthinnawan and Kwiambal national parks, and Maroomba State Conservation Area. Targeted surveys and research in these areas and other regions of potential habitat, along the lines of the radio tracking study undertaken by Pennay (2006), are needed to clarify essential aspects relating to the conservation management of this species' habitats.

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APPENDIX I

Appendix 1. Microchiropteran bat species recorded at Kwiambal National Park, March 2010

R- Regional priority (non-threatened) (Andren 2004); E - Endangered (TSC Act); V -Vulnerable (TSC Act); U - Taxonomy uncertain.

Species	Status	Detection Method			
		Harp trap	Anabat		
			Definite	Probable	Possible
Emballonuridae					
Yellow-bellied Sheathtail Bat *Saccolaimus flaviventris*	V		√		
Molossidae					
Bristle-faced Free-tailed Bat *Mormopterus eleryi*	E	1			√
Southern Free-tailed Bat *Mormopterus planiceps* (long penis)				√	
Eastern Free-tailed Bat *Mormopterus sp.2*	U			√	
White-striped Mastiff Bat *Tadarida australis*	R		√		
Vespertilionidae					
Eastern Bent-wing Bat *Miniopterus schreibersii oceanensis*	V		√		
Western Broad-nosed Bat *Scotorepens balstoni*		4			
Broad-nosed Bat *Scotorepens sp.*	RU		√		
Gould's Wattled Bat *Chalinolobus gouldii*		5			
Corben's Long-eared Bat *Nyctophilus corbeni*	V	1			
Little Forest Bat *Vespadelus vulturnus*		2			